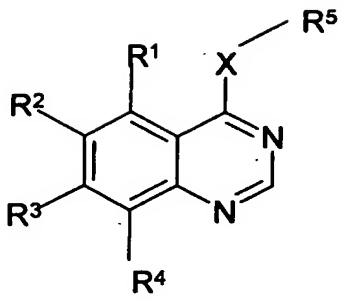
Claims

1. A compound of formula (I)



(I)

or a salt, ester, amide or prodrug thereof;

where X is O, or S, S(O), $S(O)_2$ or NR^6 where R^6 is hydrogen or C_{1-6}alkyl;

R^5 is an optionally substituted 6-membered aromatic ring containing at least one nitrogen atom, and

R^1, R^2, R^3, R^4 are independently selected from halogeno, cyano, nitro, C_{1-3}alkylsulphanyl, $-N(OH)R^7-$ (wherein R^7 is hydrogen, or C_{1-3}alkyl), or R^9X^1- (wherein X^1 represents a direct bond, -O-, $-CH_2-$, -OC(O)-, -C(O)-, -S-, -SO-, $-SO_2-$, $-NR^{10}C(O)-$, $-C(O)NR^{11}-$, $-SO_2NR^{12}-$, $-NR^{13}SO_2-$ or $-NR^{14}-$ (wherein R^{10}, R^{11}, R^{12}, R^{13} and R^{14} each independently represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl)), and R^9 is hydrogen, optionally substituted hydrocarbyl, optionally substituted heterocyclyl or optionally substituted alkoxy; provided that at least one of R^2 or R^3 is other than hydrogen.

2. A compound according to claim 1 wherein at least one group R^1, R^2, R^3, R^4 is a group R^9X^1- and R^9 is hydrogen, an optionally substituted hydrocarbyl group selected from alkyl, alkenyl, alkynyl, aryl, aralkyl, cycloalkyl, cycloalkenyl or cycloalkynyl, or combinations thereof; or an optionally substituted heterocyclyl group of from 4 to 20 ring atoms, at least one of which is a heteroatom such as oxygen, sulphur or nitrogen and where the optional substituents comprise at least one functional group selected from nitro, cyano, halo, oxo, $=CR^{78}R^{79}$, $C(O)_xR^{77}$, OR^{77}, $S(O)_yR^{77}$, $NR^{78}R^{79}$, $C(O)NR^{78}R^{79}$, $OC(O)NR^{78}R^{79}$, $=NOR^{77}$, $-NR^{77}C(O)_xR^{78}$, $-NR^{77}CONR^{78}R^{79}$, $-N=CR^{78}R^{79}$, $S(O)_yNR^{78}R^{79}$ or

$-NR^{77}S(O)_yR^{78}$ where R^{77}, R^{78} and R^{79} are independently selected from hydrogen, optionally substituted hydrocarbyl, optionally substituted hetercyclyl or optionally substituted alkoxy, or R^{78} and R^{79} together form an optionally substituted ring which optionally contains further heteroatoms such as oxygen, nitrogen, S, S(O) or $S(O)_2$, where x is an integer of 1 or 2, y is 0 or an integer of 1-3.

3. A compound according to claim 2 where hydrocarbyl, heterocyclyl or alkoxy groups R^{77}, R^{78} and R^{79} as well as rings formed by R^{78} and R^{79} are optionally substituted by halo, perhaloalkyl, mercapto, alkylthio, hydroxy, carboxy, alkoxy, heteroaryl, heteroaryloxy, cycloalkyl, cycloalkenyl, cycloalkynyl, alkenyloxy, alkynyloxy, alkoxyalkoxy, aryloxy (where the aryl group may be substituted by halo, nitro, or hydroxy), cyano, nitro, amino, mono- or di-alkyl amino, oximino or $S(O)_yR^{90}$ where y is as defined in claim 2 and R^{90} is a alkyl.

4. A compound according to any one of the preceding claims wherein at least one group R^1, R^2, R^3, R^4 is a group R^9X^1- and R^9 is hydrogen or an alkyl group, optionally substituted with one or more groups selected from functional groups as defined in claim 2 or claim 3, or alkenyl, alkynyl, aryl, heterocyclyl, cycloalkyl, cycloalkenyl or cycloalkynyl, any of which may be substituted with a functional group as defined in claim 2 or claim 3, and where any aryl, heterocyclyl, cycloalkyl, cycloalkenyl, cycloalkynyl groups may also be optionally substituted with hydrocarbyl such as alkyl, alkenyl or alkynyl.

5. A compound according to claim 1 wherein at least one group R^1, R^2, R^3, R^4 is a group R^9X^1- and R^9 is selected from one of the following twenty-two groups:
1) hydrogen or C_{1-5}alkyl which may be unsubstituted or which may be substituted with one or more groups selected from hydroxy, oxiranyl, fluoro, chloro, bromo and amino (including C_{1-3}alkyl and trifluoromethyl);
2) $-R^aX^2C(O)R^{15}$ (wherein X^2 represents -O- or $-NR^{16}$- (in which R^{16} represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{15} represents C_{1-3}alkyl, $-NR^{17}R^{18}$ or $-OR^{19}$ (wherein R^{17}, R^{18} and R^{19} which may be the same

or different each represents hydrogen, C_{1-5}alkyl. hydroxyC_{1-5}alkylor C_{1-3}alkoxyC_{2-3}alkyl));

3) $-R^bX^3R^{20}$ (wherein X^3 represents -O-, C(O) -S-, -SO-, $-SO_2-$, -OC(O)-, $-NR^{21}C(O)_s-$,

$-C(O)NR^{22}-$, $-SO_2NR^{23}-$, $-NR^{24}SO_2-$ or $-NR^{25}-$ (wherein R^{21}, R^{22}, R^{23}, R^{24} and R^{25} each independently represents hydrogen, C_{1-3}alkyl, hydroxy C_{1-4}alkyl or C_{1-3}alkoxyC_{2-3}alkyl and s is 1 or 2) and R^{20} represents hydrogen, C_{1-6}alkyl, C_{2-6}alkenyl, cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl, phenyl or a 5-6-membered saturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which C_{1-6}alkyl group may bear 1, 2 or 3 substituents selected from oxo, hydroxy, halogeno, cyclopropyl, amino, C_{1-4}alkylamino,C_{1-4}alkanoyldi-C_{1-4}alkylamino , C_{1-4}alkylthio, C_{1-4}alkoxy and which cyclic group may bear 1 or 2 substituents selected from oxo, hydroxy, halogeno, cyano, C_{1-4}cyanoalkyl, C_{1-4}alkyl, C_{1-4}hydroxyalkyl, C_{1-4}alkoxy, C_{1-4}alkoxyC_{1-4}alkyl, C_{1-4}alkylsulphonylC_{1-4}alkyl, C_{1-4}alkoxycarbonyl, C_{1-4}aminoalkyl, C_{1-4}alkylamino, di(C_{1-4}alkyl)amino, C_{1-4}alkylaminoC_{1-4}alkyl, di(C_{1-4}alkyl)aminoC_{1-4}alkyl, C_{1-4}alkylaminoC_{1-4}alkoxy, di(C_{1-4}alkyl)aminoC_{1-4}alkoxy and a group $-(-O-)_f(R^{b'})_gD$ (wherein f is 0 or 1, g is 0 or 1 and D is a C_{3-6}cycloalkyl group or a 5-6-membered saturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which cyclic group may bear one or more substituents selected from C_{1-4}alkyl));

4) $-R^cX^4R^{c'}X^5R^{26}$ (wherein X^4 and X^5 which may be the same or different are each -O-, C(O), -S-, -SO-, $-SO_2-$, $-NR^{27}C(O)_s-$, $-C(O)_xNR^{28}-$, $-SO_2NR^{29}-$, $-NR^{30}SO_2-$ or $-NR^{31}-$ (wherein R^{27}, R^{28}, R^{29}, R^{30} and R^{31} each independently represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl and s is 1 or 2) and R^{26} represents hydrogen, C_{1-3}alkyl,hydroxyC_{1-3}alkylorC_{1-3}alkoxyC_{2-3}alkyl);

5) R^{32} (wherein R^{32} is a 4-6-membered cycloalkyl or saturated heterocyclic ring (linked via carbon or nitrogen) with 1-2 heteroatoms, selected independently from O, S and N, which cycloalkyl or heterocyclic group may bear 1 or 2 substituents selected from oxo, hydroxy, halogeno, cyano, C_{1-4}alkyl, hydroxyC_{1-4}alkyl, cyanoC_{1-4}alkyl, cyclopropyl, C_{1-4}alkylsulphonylC_{1-4}alkyl, C_{1-4}alkoxycarbonyl, carboxamido, C_{1-4}aminoalkyl, C_{1-4}alkylamino,

di(C_{1-4}alkyl)amino, C_{1-4}alkylaminoC_{1-4}alkyl, C_{1-4}alkanoyl, di(C_{1-4}alkyl)aminoC_{1-4}alkyl, C_{1-4}alkylaminoC_{1-4}alkoxy, di(C_{1-4}alkyl)aminoC_{1-4}alkoxy nitro, amino, C_{1-4}alkoxy, C_{1-4}hydroxyalkoxy, carboxy, trifluoromethyl, -C(O)$NR^{38}R^{39}$, -$NR^{40}C(O)R^{41}$ (wherein R^{38}, R^{39}, R^{40} and R^{41}, which may be the same or different, each represents hydrogen, C_{1-4}alkyl, hydroxyC_{1-4}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and a group -(-O-)$_f$(C_{1-4}alkyl)$_g$ringD (wherein f is 0 or 1, g is 0 or 1 and ring D is a cyclic group selected from C_{3-6}cycloalkyl, aryl or 5-6-membered saturated or unsaturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which cyclic group may bear one or more substituents selected from halo and C_{1-4}alkyl);

6) -R^dR^{32} (wherein R^{32} is as defined hereinbefore);

7) - R^eR^{32} (wherein R^{32} is as defined hereinbefore);

8) -R^f R^{32} (wherein R^{32} is as defined hereinbefore);

9) R^{33} (wherein R^{33} represents a pyridone group, a phenyl group or a 5-6-membered aromatic heterocyclic group (linked via carbon or nitrogen) with 1-3 heteroatoms selected from O, N and S, which pyridone, phenyl or aromatic heterocyclic group may carry up to 5 substituents selected from hydroxy, nitro, halogeno, amino, C_{1-4}alkyl, C_{1-4}alkoxy, C_{1-4}hydroxyalkyl, C_{1-4}aminoalkyl, C_{1-4}alkylamino, C_{1-4}hydroxyalkoxy, oxo, cyanoC_{1-4}alkyl, cyclopropyl, C_{1-4}alkylsulphonylC_{1-4}alkyl, C_{1-4}alkoxycarbonyl, di(C_{1-4}alkyl)amino, C_{1-4}alkylaminoC_{1-4}alkyl, C_{1-4}alkanoyl, di(C_{1-4}alkyl)aminoC_{1-4}alkyl, C_{1-4}alkylaminoC_{1-4}alkoxy, di(C_{1-4}alkyl)aminoC_{1-4}alkoxy, carboxy, carboxamido, trifluoromethyl, cyano, -C(O)$NR^{38}R^{39}$, -$NR^{40}C(O)R^{41}$ (wherein R^{38}, R^{39}, R^{40} and R^{41}, which may be the same or different, each represents hydrogen, C_{1-4}alkyl, hydroxyC_{1-4}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and a group -(-O-)$_f$(C_{1-4}alkyl)$_g$ringD (wherein f is 0 or 1, g is 0 or 1 and ring D is a cyclic group selected from C_{3-6}cycloalkyl, aryl or 5-6-membered saturated or unsaturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which cyclic group may bear one or more substituents selected from halo and C_{1-4}alkyl);

10) -R^gR^{33} (wherein R^{33} is as defined hereinbefore);

11) -R^hR^{33} (wherein R^{33} is as defined hereinbefore);

12) -R^i R^{33} (wherein R^{33} is as defined hereinbefore);

13) -R^j X^6R^{33} (wherein X^6 represents -O-, _C(O)-, -S-, -SO-, -SO_2-, -OC(O)-, -NR^{38}C(O)-, -C(O)NR^{39}-, -SO_2NR^{40}-, -$NR^{41}SO_2$- or -NR^{42}- (wherein R^{38}, R^{39}, R^{40}, R^{41} and R^{42} each independently represents hydrogen, C_{1-3}alkyl, hydroxyC_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{33} is as defined hereinbefore);

14) -$R^kX^7R^{33}$ (wherein X^7 represents -O-, C(O), -S-, -SO-, -SO_2-, -NR^{43}C(O)-, -C(O)NR^{44}-, -SO_2NR^{45}-, -$NR^{46}SO_2$- or -NR^{47}- (wherein R^{43}, R^{44}, R^{45}, R^{46} and R^{47} each independently represents hydrogen, C_{1-3}alkyl, hydroxyC_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{33} is as defined hereinbefore);

15) -$R^mX^8R^{33}$ (wherein X^8 represents -O-, -C(O)-, -S-, -SO-, -SO_2-, -NR^{48}C(O)-, -C(O)NR^{49}-, -SO_2NR^{50}-, -$NR^{51}SO_2$- or -NR^{52}- (wherein R^{48}, R^{49}, R^{50}, R^{51} and R^{52} each independently represents hydrogen, C_{1-3}alkyl, hydroxyC_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{33} is as defined hereinbefore);

16) -R^n $X^9R^{n'}R^{33}$ (wherein X^9 represents -O-, -C(O)-, -S-, -SO-, -SO_2-, -NR^{53}C(O)-, -C(O)NR^{54}-, -SO_2NR^{55}-, -$NR^{56}SO_2$- or -NR^{57}- (wherein R^{53}, R^{54}, R^{55}, R^{56} and R^{57} each independently represents hydrogen, C_{1-3}alkyl, hydroxyC_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{33} is as defined hereinbefore);

17) -R^p X^9-R^{p1}lR^{32} (wherein X^9 and R^{32} are as defined hereinbefore);

18) C_{2-5}alkenyl which may be unsubstituted or which may be substituted with one or more groups selected from hydroxy, fluoro, amino, C_{1-4}alkylamino, N,N-di(C_{1-4}alkyl)amino, aminosulphonyl, N-C_{1-4}alkylaminosulphonyl and N,N-di(C_{1-4}alkyl)aminosulphonyl;

19) C_{2-5}alkynyl which may be unsubstituted or which may be substituted with one or more groups selected from hydroxy, fluoro, amino, C_{1-4}alkylamino, N,N-di(C_{1-4}alkyl)amino, aminosulphonyl, N-C_{1-4}alkylaminosulphonyl and N,N-di(C_{1-4}alkyl)aminosulphonyl;

20) -$R^tX^9R^{t'}R^{32}$ (wherein X^9 and R^{32} are as defined hereinbefore);

21) -R^u X^9 $R^{u'}R^{32}$ (wherein X^9 and R^{32} are as defined hereinbefore); and

22) - R^v $R^{58}(R^{v'})_q(X^9)_rR^{59}$(wherein X^9 is as defined hereinbefore, q is 0 or 1, r is 0 or 1, and R^{58} is a C_{1-3}alkylene group or a cyclic group selected from cyclopropyl, cyclobutyl, cyclopentylene, cyclohexylene or a 5-6-membered saturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which C_{1-3}alkylene group may bear 1 or 2 substituents selected from oxo,

hydroxy, halogeno and C_{1-4}alkoxy and which cyclic group may bear 1 or 2 substituents selected from oxo, hydroxy, halogeno, cyano, C_{1-4}cyanoalkyl, C_{1-4}alkyl, C_{1-4}hydroxyalkyl, C_{1-4}alkoxy, C_{1-4}alkoxyC_{1-4}alkyl, C_{1-4}alkylsulphonylC_{1-4}alkyl, C_{1-4}alkoxycarbonyl, C_{1-4}aminoalkyl, C_{1-4}alkylamino, di(C_{1-4}alkyl)amino, C_{1-4}alkylaminoC_{1-4}alkyl, di(C_{1-4}alkyl)aminoC_{1-4}alkyl, C_{1-4}alkylaminoC_{1-4}alkoxy, di(C_{1-4}alkyl)aminoC_{1-4}alkoxy and a group -(-O-)$_f$(C_{1-4}alkyl)$_g$ringD (wherein f is 0 or 1, g is 0 or 1 and ring D is a cyclic group selected from C_{3-6}cycloalkyl, aryl or 5-6-membered saturated or unsaturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which cyclic group may bear one or more substituents selected from halo and C_{1-4}alkyl);and R^{59} is hydrogen, C_{1-3}alkyl, or a cyclic group selected from cyclopropyl, cyclobutyl, cyclopentyl, cyclohexyl and a 5-6-membered saturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which C_{1-3}alkyl group may bear 1 or 2 substituents selected from oxo, hydroxy, halogeno, C_{1-4}alkoxy and which cyclic group may bear 1 or 2 substituents selected from oxo, hydroxy, halogeno, cyano, C_{1-4}cyanoalkyl, C_{1-4}alkyl, C_{1-4}hydroxyalkyl, C_{1-4}alkoxy, C_{1-4}alkoxyC_{1-4}alkyl, C_{1-4}alkylsulphonylC_{1-4}alkyl, C_{1-4}alkoxycarbonyl, C_{1-4}aminoalkyl, C_{1-4}alkylamino, di(C_{1-4}alkyl)amino, C_{1-4}alkylaminoC_{1-4}alkyl, di(C_{1-4}alkyl)aminoC_{1-4}alkyl, C_{1-4}alkylaminoC_{1-4}alkoxy, di(C_{1-4}alkyl)aminoC_{1-4}alkoxy and a group -(-O-)$_f$(C_{1-4}alkyl)$_g$ringD (wherein f is 0 or 1, g is 0 or 1 and D is a cyclic group selected from C_{3-6}cycloalkyl, aryl or 5-6-membered saturated or unsaturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which cyclic group may bear one or more substituents selected from halo and C_{1-4}alkyl);

and wherein R^a, R^b, $R^{b'}$, R^c, $R^{c'}$, R^d, Rg, R^j, R^n, $R^{n'}$ R^p, $R^{p'}$, $R^{t'}$, $R^{u'}$, R^v and $R^{v'}$ are independently selected from C_{1-8}alkylene groups optionally substitued by one or more substituents selected from hydroxy, halogeno, amino,

R^e R^h, R^k and R^t are independently selected from C_{2-8}alkenylene groups optionally substituted by by one or more substituents selected from hydroxy, halogeno, amino,and R^t may additionally be a bond; and

R^f, R^i, R^m and R^u are independently selected from by C_{2-8}alkynylene groups optionally susbstituted by one or more substituents selected from hydroxy, halogeno, amino.

6. A compound according to claim 5 wherein R^1, R^2, R^3, R^4 are independently selected from, halo, cyano, nitro, trifluoromethyl, C_{1-3}alkyl, $-NR^7R^8$ (wherein R^7 and R^8, which may be the same or different, each represents hydrogen or C_{1-3}alkyl), or other groups from formula-X^1R^9 (wherein X^1 represents a direct bond, -O-, $-CH_2-$, -OCO-, carbonyl, -S-, -SO-, $-SO_2-$, $-NR^{10}CO-$, $-CONR^{11}-$, $-SO_2NR^{12}-$, $-NR^{13}SO_2-$ or $-NR^{14}-$ (wherein R^{10}, R^{11}, R^{12}, R^{13} and R^{14} each independently represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl), and R^9 is selected from one of the following groups:

1') hydrogen or C_{1-5}alkyl which may be unsubstituted or which may be substituted with one or more groups selected from hydroxy, fluoro or amino,

2') C_{1-5}alkyl$X^2C(O)R^{15}$ (wherein X^2 represents -O- or $-NR^{16}-$ (in which R^{15} represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^5 represents C_{1-3}alkyl, $-NR^{17}R^{18}$ or $-OR^{19}$ (wherein R^{17}, R^{18} and R^{19} which may be the same or different each represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl));

3') C_{1-5}alkylX^3R^{20} (wherein X^3 represents -O-, -S-, -SO-, $-SO_2-$, -OCO-, $-NR^{21}CO-$, $-CONR^{22}-$, $-SO_2NR^{23}-$, $-NR^{24}SO_2-$ or $-NR^{25}-$ (wherein R^{21}, R^{22}, R^{23}, R^{24} and R^{25} each independently represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{20} represents hydrogen, C_{1-3}alkyl, cyclopentyl, cyclohexyl or a 5-6-membered saturated heterocyclic group with 1-2 heteroatoms, selected independently from O, S and N, which C_{1-3}alkyl group may bear 1 or 2 substituents selected from oxo, hydroxy, halogeno and C_{1-4}alkoxy and which cyclic group may bear 1 or 2 substituents selected from oxo, hydroxy, halogeno, C_{1-4}alkyl, C_{1-4}hydroxyalkyl and C_{1-4}alkoxy);

4') C_{1-5}alkylX^4C_{1-5}alkylX^5R^{26} (wherein X^4 and X^5 which may be the same or different are each -O-, -S-, -SO-, $-SO_2-$, $-NR^{27}CO-$, $-CONR^{28}-$, $-SO_2NR^{29}-$, $-NR^{30}SO_2-$ or $-NR^{31}-$ (wherein R^{27}, R^{28}, R^{29}, R^{30} and R^{31} each independently represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{26} represents hydrogen or C_{1-3}alkyl);

5') R^{32} (wherein R^{32} is a 5-6-membered saturated heterocyclic group (linked via carbon or nitrogen) with 1-2 heteroatoms, selected independently from O, S and N, which heterocyclic group may bear 1 or 2 substituents selected from oxo, hydroxy, halogeno, C_{1-4}alkyl, C_{1-4}hydroxyalkyl, C_{1-4}alkoxy, C_{1-4}alkoxyC_{1-4}alkyl and C_{1-4}alkylsulphonylC_{1-4}alkyl);

6') C_{1-5}alkylR^{32} (wherein R^{32} is as defined in (5') above);

7') C_{2-5}alkenylR^{32} (wherein R^{32} is as defined in (5') above);

8') C_{2-5}alkynylR^{32} (wherein R^{32} is as defined in (5') above);

9') R^{33} (wherein R^{33} represents a pyridone group, a phenyl group or a 5-6-membered aromatic heterocyclic group (linked via carbon or nitrogen) with 1-3 heteroatoms selected from O, N and S, which pyridone, phenyl or aromatic heterocyclic group may carry up to 5 substituents on an available carbon atom selected from hydroxy, halogeno, amino, C_{1-4}alkyl, C_{1-4}alkoxy, C_{1-4}hydroxyalkyl, C_{1-4}aminoalkyl, C_{1-4}alkylamino, C_{1-4}hydroxyalkoxy, carboxy, trifluoromethyl, cyano, -$CONR^{34}R^{35}$ and -$NR^{36}COR^{37}$ (wherein R^{34}, R^{35}, R^{36} and R^{37}, which may be the same or different, each represents hydrogen, C_{1-4}alkyl or C_{1-3}alkoxyC_{2-3}alkyl));

10') C_{1-5}alkylR^{33} (wherein R^{33} is as defined in (9') above);

11') C_{2-5}alkenylR^{33} (wherein R^{33} is as defined in (9') above);

12') C_{2-5}alkynylR^{33} (wherein R^{33} is as defined in (9') above);

13') C_{1-5}alkylX^6R^{33} (wherein X^6 represents -O-, -S-, -SO-, -SO_2-, -NR^{38}CO-, -$CONR^{39}$-, -SO_2NR^{40}-, -$NR^{41}SO_2$- or -NR^{42}- (wherein R^{38}, R^{39}, R^{40}, R^{41} and R^{42} each independently represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{33} is as defined hereinbefore);

14') C_{2-5}alkenylX^7R^{33} (wherein X^7 represents -O-, -S-, -SO-, -SO_2-, -NR^{43}CO-, -$CONR^{44}$-, -SO_2NR^{45}-, -$NR^{46}SO_2$- or -NR^{47}- (wherein R^{43}, R^{44}, R^{45}, R^{46} and R^{47} each independently represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{33} is as defined hereinbefore);

15') C_{2-5}alkynylX^8R^{33} (wherein X^8 represents -O-, -S-, -SO-, -SO_2-, -NR^{48}CO-, -$C(O)NR^{49}$-, -SO_2NR^{50}-, -$NR^{51}SO_2$- or -NR^{52}- (wherein R^{48}, R^{49}, R^{50}, R^{51} and R^{52} each independently represents hydrogen, C_{1-3}alkyl or C_{1-3}alkoxyC_{2-3}alkyl) and R^{33} is as defined hereinbefore);

16') $C_{1-3}alkylX^9C_{1-3}alkylR^{33}$ (wherein X^9 represents -O-, -S-, -SO-, $-SO_2-$, $-NR^{53}CO-$, $-C(O)NR^{54}-$, $-SO_2NR^{55}-$, $-NR^{56}SO_2-$ or $-NR^{57}-$ (wherein R^{53}, R^{54}, R^{55}, R^{56} and R^{57} each independently represents hydrogen, $C_{1-3}alkyl$ or $C_{1-3}alkoxyC_{2-3}alkyl$) and R^{33} is as defined hereinbefore); and

17') $C_{1-3}alkylX^9C_{1-3}alkylR^{32}$ (wherein X^9 and R^{32} are as defined in (5') above), provided that at least one of R^2 or R^3 is other than hydrogen.

7. A compound according to any one of the preceding claims where R^1 is hydrogen and R^4 is hydrogen, halo, C_{1-4} alkyl or $C_{1-4}alkoxy$.

8. A compound according to any one of the preceding claims wherein at least one group R^2 or R^3 comprises a chain of at least 3 optionally substituted carbon atoms or heteroatoms selected from oxygen, nitrogen or sulphur.

9. A compound according to claim 8 wherein said chain is substituted by a polar group which assists solubility.

10. A compound according to any one of the preceding claims wherein R^3 is a group X^1R^9 where X^1 is oxygen and R^9 includes a methylene group directly adjacent X^1.

11. A compound according to claim 5 wherein at least one of R^1, R^2, R^3 or R^4 is a group X^1R^9 which includes a bridging alkylene, alkenylene or alkynylene groups R^a, R^b, $R^{b'}$, R^c, $R^{c'}$, R^d, R^g, R^j, R^n, $R^{n'}$ R^p, $R^{p'}$, $R^{t'}$, $R^{u'}$, R^v, $R^{v'}$, R^e R^h, R^k R^t, R^f, R^i, R^m and R^u and least one such group includes a hydroxy substituent.

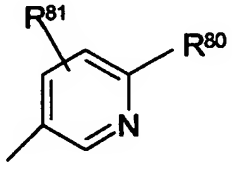
12. A compound according to claim 5 wherein R^9 is selected from a group of formula (1), (3), (6) or (10).

13. A compound according to any one of the preceding claims wherein X is NH or O.

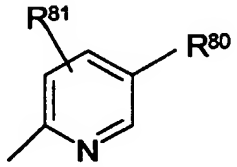
14. A compound according to any one of the preceding claims wherein R^5 is optionally substituted pyridine.

15. A compound according to any one of claims 1 to 13 where R^5 is optionally substituted pyrimidine.

16. A compound according to claim 14 wherein R^5 is a group of sub-formulae (i) or (ii)



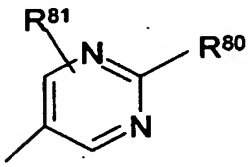
(i)



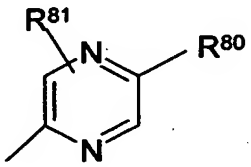
(ii)

where R^{80} is a large substituent of a chain of at least 4 atoms, and R^{81} is hydrogen halo, C_{1-4}alkoxy, cyano or trifluoromethyl, or phenyl.

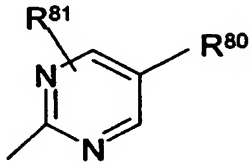
17. A compound according to claim 15 where R^5 is a group of sub-formula (iii), (iv) or (v)



(iii)



(iv)



(v)

where R^{80} is a large substituent of a chain of at least 4 atoms, and R^{81} is hydrogen halo, C_{1-4}alkoxy, cyano or trifluoromethyl, or phenyl.

18. A compound according to claim 17 wherein R^5 is a group of formula (iii).

19. A compound according to any one of claims 14 to 18 where pyridine or pyrimidine groups R^5 are substitued by one or more groups selected from a) a functional group as defined in claim 2 or claim 3;

b) a hydrocarbyl selected from alkyl, alkenyl, alkynyl, aryl, aralkyl, cycloalkyl, cycloalkenyl or cycloalkynyl, or combinations thereof ; any of which are optionally substituted by one or more functional groups as defined in claim 2 or claim 3;

c) a heterocyclyl group optionally substituted by one or more functional groups as defined in claim 2 or claim 3 or hydrocarbyl groups selected from alkyl, alkenyl, alkynyl, aryl, aralkyl, cycloalkyl, cycloalkenyl or cycloalkynyl, or combinations thereof , wherein the hydrocarbyl group may be substitued by a functional group as defined in claim 2 or claim 3 or a heterocyclic group;

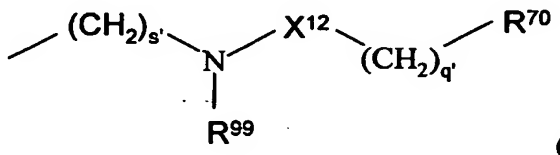
d)alkoxy optionally substituted by a functional group as defined in claim 2 or claim 3, or a heterocylic group which is optionally substituted by a functional group as defined in claim 2 or claim 3.

20. A compound according to any one of the preceding claims wherein R^5 is substituted by one or more groups selected from:

1) halo,C_{1-4}alkyl, optionally substituted C_{1-6} alkoxy, C_{1-4}alkoxymethyl, di(C_{1-4}alkoxy)methyl, C_{1-4}alkanoyl, carboxy, benzoyl, trifluoromethyl, cyano, amino, C_{2-5}alkenyl, C_{2-5}alkynyl, a phenyl group, a benzyl group or a 5-6-membered heterocyclic group with 1-3 heteroatoms, selected independently from O, S and N, which heterocyclic group may be aromatic or non-aromatic and may be saturated (linked via a ring carbon or nitrogen atom) or unsaturated (linked via a ring carbon atom), and which phenyl, benzyl or heterocyclic group may bear on one or more ring carbon atoms up to 5 substituents selected from hydroxy, halogeno, C_{1-3}alkyl, C_{1-3}alkoxy, C_{1-3}alkanoyloxy, trifluoromethyl, cyano, amino, nitro, C_{2-4}alkanoyl, C_{1-4}alkanoylamino, C_{1-4}alkoxycarbonyl, C_{1-4}alkylsulphanyl, C_{1-4}alkylsulphinyl, C_{1-4}alkylsulphonyl, carbamoyl, N-C_{1-4}alkylcarbamoyl, N,N-di(C_{1-4}alkyl)carbamoyl, aminosulphonyl, N-C_{1-4}alkylaminosulphonyl, N,N-di(C_{1-4}alkyl)aminosulphonyl, C_{1-4}alkylsulphonylamino, and a saturated heterocyclic group selected from morpholino, thiomorpholino, pyrrolidinyl, piperazinyl, piperidinyl imidazolidinyl and pyrazolidinyl, which saturated heterocyclic group may bear 1 or 2

substituents selected from oxo, hydroxy, halogeno, C_{1-3}alkyl, C_{1-3}alkoxy, C_{1-3}alkanoyloxy, trifluoromethyl, cyano, amino, nitro and C_{1-4}alkoxycarbonyl;

2) a group of sub-formula (II)



(II)

where q' is 0, 1, 2, 3 or 4;

s' is 0 or 1;

X^{12} is C(O) or $S(O_2)$,

R^{70} is hydrogen, hydroxy, C_{1-6}alkyl, C_{1-6}alkoxy, amino, *N*-C_{1-6}alkylamino, *N,N*-(C_{1-6}alkyl)$_2$amino, hydroxyC_{2-6}alkoxy, C_{1-6}alkoxyC_{2-6}alkoxy, aminoC_{2-6}alkoxy, *N*-C_{1-6}alkylaminoC_{2-6}alkoxy, *N,N*-(C_{1-6}alkyl)$_2$aminoC_{2-6}alkoxy or C_{3-7}cycloalkyl,

or R^{70} is of the Formula (III):

—K—J (III)

wherein J is aryl, heteroaryl or heterocyclyl and K is a bond, oxy, imino, *N*-(C_{1-6}alkyl)imino, oxyC_{1-6}alkylene, iminoC_{1-6}alkylene, *N*-(C_{1-6}alkyl)iminoC_{1-6}alkylene, -NHC(O) -, $-SO_2NH-$, $-NHSO_2-$ or -NHC(O)-C_{1-6}alkylene-,

and any aryl, heteroaryl or heterocyclyl group in a R^{70} group may be optionally substituted by one or more groups selected from hydroxy, oxo, halo, trifluoromethyl, cyano, mercapto, nitro, amino, carboxy, carbamoyl, formyl, sulphamoyl, C_{1-6}alkyl, C_{2-6}alkenyl, C_{2-6}alkynyl, C_{1-6}alkoxy, -O-(C_{1-3}alkyl)-O-, C_{1-6}alkyl$S(O)_n$- (wherein n is 0-2), *N*-C_{1-6}alkylamino, *N,N*-(C_{1-6}alkyl)$_2$amino, C_{1-6}alkoxycarbonyl, *N*-C_{1-6}alkylcarbamoyl, *N,N*-(C_{1-6}alkyl)$_2$carbamoyl, C_{2-6}alkanoyl, C_{1-6}alkanoyloxy, C_{1-6}alkanoylamino, *N*-C_{1-6}alkylsulphamoyl, *N,N*-(C_{1-6}alkyl)$_2$sulphamoyl, C_{1-6}alkylsulphonylamino and C_{1-6}alkylsulphonyl-*N*-(C_{1-6}alkyl)amino,

or any aryl, heteroaryl or heterocyclyl group in a R^{70} group may be optionally substituted with one or more groups of the Formula (IV):

$$-B^1-(CH_2)_p-A^1 \qquad (IV)$$

wherein A^1 is halo, hydroxy, C_{1-6}alkoxy, cyano, amino, *N*-C_{1-6}alkylamino, *N*,*N*-(C_{1-6}alkyl)$_2$amino, carboxy, C_{1-6}alkoxycarbonyl, carbamoyl, *N*-C_{1-6}alkylcarbamoyl or *N*,*N*-(C_{1-6}alkyl)$_2$carbamoyl, p is 1 - 6, and B^1 is a bond, oxy, imino, *N*-(C_{1-6}alkyl)imino or -NHC(O)-, with the proviso that p is 2 or more unless B^1 is a bond or -NHC(O)-;

or any aryl, heteroaryl or heterocyclyl group in a R^{70} group may be optionally substituted with one or more groups of the Formula (V):

$$--E^1-D^1 \qquad (V)$$

wherein D^1 is aryl, heteroaryl or heterocyclyl and E^1 is a bond, C_{1-6}alkylene, oxyC_{1-6}alkylene, oxy, imino, *N*-(C_{1-6}alkyl)imino, iminoC_{1-6}alkylene, *N*-(C_{1-6}alkyl)-iminoC_{1-6}alkylene, C_{1-6}alkylene-oxyC_{1-6}alkylene, C_{1-6}alkylene-iminoC_{1-6}alkylene, C_{1-6}alkylene-*N*-(C_{1-6}alkyl)-iminoC_{1-6}alkylene, -NHC(O)-, -NHSO$_2$-, -SO$_2$NH- or -NHC(O)-C_{1-6}alkylene-, and any aryl, heteroaryl or heterocyclyl group in a substituent on R^4 may be optionally substituted with one or more groups selected from hydroxy, halo, C_{1-6}alkyl, C_{1-6}alkoxy, carboxy, C_{1-6}alkoxycarbonyl, carbamoyl, *N*-C_{1-6}alkylcarbamoyl, *N*-(C_{1-6}alkyl)$_2$carbamoyl, C_{2-6}alkanoyl, amino, *N*-C_{1-6}alkylamino and *N*,*N*-(C_{1-6}alkyl)$_2$amino,

and any C_{3-7}cycloalkyl or heterocyclyl group in a R^{70} group may be optionally substituted with one or two oxo or thioxo substituents,

and any of the R^{70} groups defined hereinbefore which comprises a CH_2 group which is attached to 2 carbon atoms or a CH_3 group which is attached to a carbon atom may optionally bear on each said CH_2 or CH_3 group a substituent selected from hydroxy, amino, C_{1-6}alkoxy, *N*-C_{1-6}alkylamino, *N*,*N*-(C_{1-6}alkyl)$_2$amino and heterocyclyl;

or R^{70} may be cycloalkenyl or cycloalkynyl such as cyclohexenyl, or alkenyl optionally substituted by aryl;

and R^{99} is hydrogen or a group C(O)R^{70} where R^{70} is as defined above;

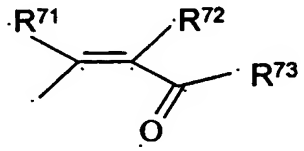
3) a group of sub-formula (d) or (e)

$$-X^{10}(CH_2)_p-X^{11}R^{100} \quad (d)$$

$-X^{13}R^{100}$ (e)

where p' is 1-3, X^{10} and X^{11} are independently selected from a bond, -O-, -S- or NR^{101}- where R^{101} is hydrogen or a C_{1-3}alkyl, provided that one of X^{10} or X^{11} is a bond; X^{13} is -O-, -S- or NR^{102}- where R^{102} is hydrogen or a C_{1-3}alkyl and R^{100} is hydrogen or optionally substituted hydrocarbyl or optionally substituted heterocycyl, wherein any optional substituents may be functional groups as defined in claim 2 or claim 3; or

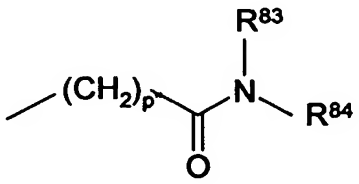
4) a group of formula (VI)



(VI)

where R^{71} and R^{72} are independently selected from hydrogen or C_{1-4}alkyl, or R^{71} and R^{72} together form a bond, and R^{73} is a group OR^{74}, $NR^{75}R^{76}$ where R^{74}, R^{75} and R^{76} are independently selected from optionally substituted hydrocarbyl or optionally substituted heterocyclic groups, and R^{75} and R^{76} may additionally form together with the nitrogen atom to which they are attached, an aromatic or non-aromatic heterocyclic ring which may contain further heteroatoms, wherein suitable optional substituents for hydrocarbyl or heterocyclic groups R^{74}, R^{75} and R^{76} include functional groups as defined in claim 2 or claim 3 and heterocyclic groups R^{74}, R^{75} and R^{76} may further be substituted by a hydrocarbyl group;

5) a group of sub-formula (f)

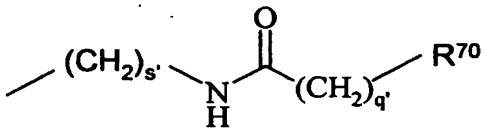


(f)

where p" is 0 or 1 and R^{83} and R^{84} are independently selected from hydrogen, optionally substituted hydrocarbyl or optionally substituted heterocyclyl, or R^{83} and R^{84} together with the nitrogen atom to which they are attached form an

optionally substituted heterocyclic ring and where optional substituents hydrocarbyl or heterocyclic groups R^{83} and R^{84} include functional groups as defined in claim 2 or claim 3 and heterocyclic groups R^{83} or R^{84} may further be substituted by a hydrocarbyl group.

21. A compound according to claim 20 wherein R^5 is substituted by a group of sub formula (II) which is a compound of formula (IIA)



(IIA)

where s', q' and R^{70} are as defined in claim 20.

22. A compound according to claim 20 or claim 21 wherein the substituent includes a group R^{70} and said group is phenyl optionally substituted by halo.

23. A compound according to claim 20 where R^5 is substituted by a group of formula (d) or (e) and R^{100} is a group R^{70} selected from optionally substituted phenyl or optionally substituted pyridyl.

24. A compound according to claim 20 or claim 23 wherein R^5 is substituted by a group of sub-formula (d)

25. A compound according to any one of the preceding claim which is a phosphate prodrug of a compound of formula (I).

26. A method for preparing a compound of formula (I) as defined in claim 1, which method comprises reacting a compound of formula (VII)

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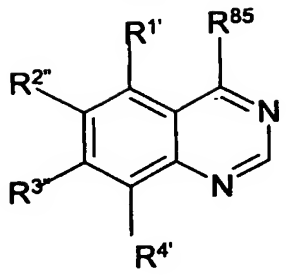

(VII)

where $R^{1'}$, $R^{2"}$, $R^{3"}$, and $R^{4'}$ are equivalent to a group R^1, R^2, R^3 and R^4 as defined in relation to formula (I) or a precursor thereof, and R^{85} is a leaving group, with a compound of formula (VIII)

$$H\text{-}X\text{-}R^5 \qquad \text{(VIII)}$$

where X and R^5 are as defined in relation to formula (I): and thereafter if desired or necessary converting a group $R^{1'}$, $R^{2"}$, $R^{3"}$ or $R^{4'}$ to a group R^1, R^2, R^3 and R^4 respectively or to a different such group.

27. A method for inhibiting aurora 2 kinase in a warm blooded animal, such as man, in need of such treatment, which comprises administering to said animal an effective amount of a compound according to claim 1, or salt, ester amide or prodrug thereof.

28. The use of a compound according to any one of claims 1 to 25 or salt, ester, amide or prodrug thereof, in the preparation of a medicament to inhibiting aurora 2 kinase.

29. A pharmaceutical composition comprising a compound according to any one of claims 1 to 25 or salt, ester amide or prodrug thereof, in combination with a pharmaceutically acceptable carrier.

30. A compound according to any one of claims 1 to 25 or salt, ester, amide or prodrug thereof for use in therapy.